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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YAO, SAMCHUAN CUA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/823,523	Applicant(s) HERMESCEC ET AL.	
	Examiner Sam Chuan C. Yao	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07-27-05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Election/Restrictions***

1. Applicant's election with traverse of Group IA (claims 1-10) in the reply filed on 02-13-06 is acknowledged. The traversal is on the ground(s) that "The Examiner seems to be suggesting that the wood as per Claim 1 would be obtained by a process similar to that defined by Claim 1 but which the diffusion step (b) is omitted. There is however no technical basis of this suggestion ... the present specification suggests that the diffusion of the furfuryl alcohol in the wood is an aspect of the invention". This is not found persuasive because as noted earlier, the two subgroups of group I have patentably distinct subject matters. In fact, the claims in these two subgroups in the context of the totality of the claims are mutually exclusive from each other. For instance, while independent claim 1 in subgroup IA requires diffusing furfuryl alcohol solution into a wood by application of vacuum pressure (claim 4) or allowing the solution to diffuse for 3-5 day under ambient condition (claim 6), diffusion of furfuryl alcohol is NOT required in independent claim 14 in subgroup IB since it is blended with wood particles. In fact, this is not desired in subgroup IB, see for example dependent claim 17, where it requires wood particles being coated with a solution of furfuryl alcohol and furfuryl aldehyde, and "... there is no **significant penetration of the solution** into the wood ..." (bold-face added)..

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-3, 5, and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is indefinite, because it is unclear whether this claim positively requires using a maleic acid.

Claim 3 is indefinite, because it is unclear whether this claim positively requires using 5% by volume of water.

Claim 5 is indefinite, because it is unclear whether this claim positively requires applying a pressure of "at least 300 kPa".

Claim 8 is indefinite, because the phrase "the wood fibers" does not have a positive antecedent basis.

Claim 9 is indefinite, because it is unclear whether this claim positively requires heat-pressing for a period of "about 5-15 minutes".

Claim 10 is indefinite, because it is unclear whether this claim positively requires improving permeability "by microwave or steam treatments".

For the purpose of examining claims 2-3, 5 and 9-10, it is assumed that the limitations, which follow after the preposition "preferably", are merely optional process limitations.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Giebeler et al (US 4,678,715). See abstract; col. 2 lines 3-51; col. 3 lines 3-68; col. 4 lines 1-14; claims 1, 9-12.

In view of the similarity of the production processes, the recited characteristics of a furfuryl impregnated wood recited in claims 7-8 are taken to be inherent in the process taught by Giebeler et al. Note that, claim 7 reads on zero swelling of wood.

Note: Where ... the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. **Whether the rejection is based on "inherency" under 35 USC § 102, on prima facie obviousness" under 35 USC § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products."** In re Best, 562 F2d 1252, 1255, 195 USPQ 430, 433-4 (CCPA 1977).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein (US 2,909,450) in view of Giebeler et al (US 4,678,715).

With respect to claim 1-4 and 7-8, Goldstein discloses a process for impregnating a wood, the process includes providing a solution comprising a furfuryl alcohol, water and an additive such as a catalyst to facilitate polymerization; impregnating the wood with the solution; applying a suitable vacuum pressure to allow the solution to effectively penetrate into the wood; applying pressure the impregnated wood; and then heating the pressure treated wood to cure the furfuryl alcohol in the solution. (col. 1 lines 15-65; col. 2 lines 2-26; col. 3 lines 18-71; col. 4 lines 29-35; col. 5 lines 55-60).

While Goldstein teaches applying pressure and heat to a furfuryl alcohol impregnated wood, Goldstein does not appear to teach hot-pressing a furfuryl alcohol impregnated wood. However, such would have been obvious in the art, because it is old in the art to heat-press a furfuryl alcohol treated wood in order to *"... react with each other and with constituents of the wood to form thermosetting polymers, and by reacting these components to form the corresponding polymers under pressure during a concurrent or rapidly ensuing heat treatment ..."* as exemplified teachings of Giebeler et al (abstract; col. 2 lines 3-51; col. 3 lines 3-68; col. 4 lines 1-14; claims 1, 9-12). See

With respect to claims 5-6, Goldstein teaches applying a vacuum pressure of 27 inches of Hg (91.4 kPa) to facilitate the impregnation of wood with the solution, thereafter, the impregnated wood has been subjected to a pressure of around

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150 psi (i.e. 1034 kPa which is at least 300 kPa or about 1000 kPa). One in the art would have reasonably understood and appreciated that one could effect the same desired result of impregnating a wood with the solution by simply soaking the wood in a bath of the solution for a period of time which would clearly be significantly longer than the one suggested by Goldstein. The recited impregnating period is taken to be a result effective variable routinely optimized by those versed in the art.

With respect to claim 9, absent any showing of unexpected benefit, the operating condition in this claim is taken to be result effective variable routinely optimize by those versed in the art. Moreover, the operating pressure and temperature are taken to be old in the art. For these reason, the limitation in this claim would have been obvious in the art.

With respect to claim 10, it is old in the art to increase the porosity/permeability of a substrate in order to facilitate the impregnation of the substrate. For this reason, this claim would have obvious in the art.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (571) 272-1224. The examiner can normally be reached on Monday-Friday with second Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Richard Crispino can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sam Chuan C. Yao
Primary Examiner
Art Unit 1733

Scy
03-29-06